



TEACHING-LEARNING WITH ICT AT PRIMARY LEVEL

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The emergence of information and communication technology has ushered in a new era. It has brought about a revolution in the field of teaching-learning process. ICT is affecting both the teaching style and the learning style, whereby a student becomes the explorer of information and an independent knowledge worker. The National Curriculum Framework for School Education (2002) addresses at length the question of integration of information and communication technology (ICT) into schooling and acknowledges the pedagogical rationale behind this integration and brings to the fore its manifold implications. The National Curriculum Framework (2005) suggested that information and communication technologies can enable activity-based and collaborative processes. Computer literacy is the need of the hour. It has the capability of multiplying the human intellect beyond part conceptions and has tremendous implications for education. Computers can be used as books or workbooks, for word-processing and for programming of graphics among young children (pre-school 2nd grade students) (Brown, 1996). Number of educational software has been developed for providing rich educational materials to the students. With the advent of ICT, the traditional talk and chalk approach, the blackboard, the charts have given way to slides, OHP, multimedia presentation, graphics, computers, animation, video-clippings, T.V., radio broadcasts, audio-video tapes etc, to be used for educational purposes. IT is also complemented by tele-education via satellites.

Importance of ICT

Information and communication technology was originally intended to serve as a means of improving efficiency in the educational process (Jones & Knezek, 1993). ICT in education can help to improve memory retention, increase motivation and generally deepen understanding (Dede, 1998). According to Wheeler (2000), ICT brings shared learning resources, autonomous learning and collaborative learning to the classroom. Kumar (2008) opined that, ICT can be used as a tool to improve the quality of education for preparing the society and its manpower to face the challenges of the future. ICT has a particular focus within the primary classroom. It is a tool which gives teacher a fun and effective way to raise students' motivation. In the initial stage of school education, students are not experts in reading and writing. Their content understanding increases if they are taught through visualization, animation etc. as it helps to attract the attention of children and keep them an active participant instead of passive listeners. Thus, ICT can make a critical contribution to children's learning in the primary school (Loveless & Loveless, 2002).

ICT is very advantageous for the schools, teachers and students. In case of schools, computer use would facilitate learning and therefore have a positive effect on performance. The strengths of ICT provision in primary schools includes – the increasingly effective use of ICT to support the whole class teaching; and better and more frequent use of ICT in the development of the children's literacy and numeracy skills and in supporting children with special educational needs. It will provide access to learning resources both inside and outside the school environment. These new technologies will enable schools, libraries and local communities to collaborate on developing joint learning programmes. According to Wheeler (2000), the benefits that ICT brings to the classroom includes sharing of resources and learning environments as well as the promotion of collaborative learning and a general move towards greater learner autonomy.

The effective and efficient use of ICTs depends largely on technically competent educators/teachers. One of the most significant barriers to successful integration of ICT and transformation of learning has been teacher's lack of confidence, experience and pedagogical understanding in mobilizing the potential of digital technologies. Thus, teachers must have good knowledge of the nature and scope of the available resources and must identify effectively the opportunities to integrate and utilize ICT to support work in most of the curriculum areas. Primary teachers must have a positive attitude towards ICTs because then only they can develop the same among their students which will enhance students' competency. ICT can be used by teachers to enhance the quality of the presentation of their planning as well as to prepare learning materials and to enrich the presentation and content of school displays and the children's project work. Meadows and Leask (2003) introduced teachers to the range of ways that ICT can be used to support teaching-learning process in the primary school.

According to Verma and Verma (2008), the use of ICT in education lends itself to more student-centered learning settings. According to Fidalgo, Tornaghi, Meirelles, Bercot, Xavier, Castro and Alves (2009), digital technology has become essential in everyday life and therefore demands have been placed on schools to educate students so as to make them technologically literate. It can be seen that students respond to ICT in a positive way and are motivated by ICT related activities. Children have high level of interest and enthusiasm when they work in ICT environment; they are motivated by the inclusion of ICT in their lessons as ICT changes the nature of motivation to learn (Forcheri & Malfino, 2000). The educational activities that involve the use of technology capture the interest of students, which facilitates their understanding of the content and provides a different way of expressing knowledge. Empirical research on this subject shows evidence that confirms a relationship between computer use at school and performance (Weaver, 2000). Malik (1995) reported that, direct mode presentation of ETV was effective in terms of achievement of learners on school subjects. He also found that there exists positive effect of technology acquaintance of students at lower primary and upper primary stages on their achievement in ETV lessons. Kullik et. al. (1983) found that students with computer based teaching score better on final examination than did students in conventionally taught classes. Antonijevic (2007) in his study which included 47 participants countries worldwide found that, the use of computers in education contributes significantly to higher student performance in Science and not in Mathematics. Kumar (2009) reported that CD is effective in teaching Science at primary level. The ETV lessons in Mathematics and EVS taught to students of both class III and V significantly improved their learning achievement as compared to their counterparts taught through traditional method (Meenu, 2006). Chaudhary and Desai (2007) reported that both teachers and students of elementary level opine that computer-assisted learning has positive effect on learning of Mathematics, Science and English. Reddy and Ramar (1995) found that students of class VIII taught through multimedia modular approach performed better than those taught through traditional lecture method. Mahajan (1994) reported that computer-assisted instruction was effective for teaching singular and plural to grade II. It has also been reported that computer - based instruction helps in developing the reading skills among primary school children (Balasubramanian, 2000). Das, Joseph, Biswal and Goel (1995) reported the effectiveness of text-cum-graphic-cum-music method in teaching Hindi rhymes. Nisar, Munir and Shad (2011) reported that

availability and usage of ICT improves the knowledge and learning skills of students. This indicates that existence of ICT is improving the educational efficiency as well as obliging for making policies regarding education sector. Kumari (2010) found in her study that CAI is effective in teaching English grammar.

Present Status of ICT in India

The access to ICT facilities whether by students or teachers is of great concern in India. Though computers came to Indian classrooms in the year 1984-85, the level of adoption of modern technology in the teaching-learning process has been limited and uneven and computer awareness insufficient in schools. To meet the needs of the students two educational programmes viz., 'Gyanvani' and 'Gyandarshan' were started on All India Radio and TV respectively for learners of all ages from primary to university level (Berman, 2008). A survey conducted by Bhardwaj (2007) in the states of Gujrat and Karnataka revealed that the use of ICT in education is very limited in the country whether measured by the number of schools having an ICT department or unit (20.4%), the availability of a budget in schools for its implementation (6.5%), the number of teachers trained at ICT. In the 200 schools surveyed in Surendranagar there were only 2 multi-media projectors, 3 PDAs and 4 scanners; in Ahmedabad, there were only 589 desktop computers in 100 schools. He also reported that while there is relatively better availability of older technologies like the televisions, new technological products like multi-media projectors, laptops, PDAs which make learning more student-centric were scarce. In Gujrat and Karnataka, private school students used ICT marginally more than government school students. According to Chaudhary and Desai (2007), computers have become more accessible in the schools. 'Sarva Shiksha Abhiyan' has implemented the computer-assisted learning programme in elementary schools of Gujrat state. As reported by Sarapuria (2005), the status of computer education programme is poor in government and rural schools when compared with private and urban schools. He also reported that, students possess high level of interest in computer education programme and an average awareness towards internet.

In the year 2000, Rajiv Gandhi Shiksha Mission of M.P. government launched a pilot project 'Headstart' in about 648 schools of M.P. 'Headstart' is the largest computer enabled education programme in India, and it aimed at improving the quality of learning by making the learning process interactive and interesting through the use of computers in the classroom in primary and middle schools. In 2002-03 only 7.02% schools had computer, but in 2005-06 this percentage increased upto 10.73%. Though the percentage of primary schools having computer facility is much lower than the percentage of other types of schools, more than twelve thousand schools imparting elementary education in the country in 2005 had computer in school (Times of India, 2007). In states like Bihar (51.5%), U.P. (44.78%), Rajasthan (53.18%) the efficiency obtained by the students is much lower than the average of all states. It can be concluded that a large number of states in India have not been able to make much head way in the area of computer-aided learning and therefore, end up reaching far behind the target of achievement.

Thus, it can be concluded that, in India in most of the schools the use of electronic communication, creation and maintenance of websites are underdeveloped and underused. Millions of rupees have been invested by the government to equip schools with computers and communication tools, but still there is low ICT literacy among school going generation. As a result of all this, government of India has initiated the process to formulate the 'National Policy on ICT in School Education'.

Suggestions to Improve the Present Status of ICT in India

Due to the present status of ICT at the school level in India, the NCF (2002), with respect to large scale introduction of ICT in schools, pleads for – adequate infrastructure facilities; children's access to global resources; professional development opportunities for teachers; development of appropriate curriculum models and pedagogy that makes the best use of ICT facilities; and availability of appropriate learning materials in support of the curriculum.

According to National Policy on ICT in School Education (2008), the existing economic and digital divide needs to be bridged and implementation and integration of ICT into the educational system should address the following key-points-

- Regardless of gender and financial status of students, education for every student should be the motto of ICT implementation.
- Provide cost-efficient delivery of education to build a strong equitable and economically strong knowledge society.
- Develop partnership with government and private agencies for delivery of ICT education.

For the best practices, the teacher must be aware of the importance of the appropriate use of ICT to support their teaching and to enhance the children's learning. They must be enthusiastic about incorporating the use of ICT to stimulate children's interest in learning. The teachers must use the wide range of available software tools and ICT equipment more effectively to provide a more coherent and broader range of ICT experiences for the children.

The planning for ICT must be comprehensive and its development must be a priority in the school development plan.

The management and leadership of ICT are of utmost importance for the successful implementation of ICT at the primary level. The principal of the school must have a clear vision of how ICT is to be developed in school in a progressive and manageable manner to broaden the children's experiences and to raise the standard. When the schools will realize the value of using the computers in the classroom, it is hoped that the school will seek funds on its own to either upgrade the existing computer or buy a new one and initiate computer education in school.

Students should be given training for operating computers so that they can be self-learners in future. Favourable attitude towards computer should be developed among the students.

As the crops cannot be reaped unless and until the seeds are not sowed similarly in order to enjoy the advantages of information and communication technology in the field of education, there should be proper supply and better facilities for the maintenance of computers and other technological devices in the schools. The obstacles in the way of implementation of ICT in schools are non-availability of infrastructural facilities, qualified teachers, non-paying capacity of students and non-supply of regular electricity. Therefore, these tribulations should be removed on priority basis so that students are benefited from this.

Rapid changes in technology will ensure that ICT will proliferate in the primary classroom. It is predicted that there will be many benefits for both the learner and the teacher, including the promotion of shared working space and resources, better access to information, promotion of collaborative learning and radical new ways of teaching and learning. ICT also requires a modification in the role of the teacher, who in addition to classroom teaching will also have other skills and responsibilities. The use of ICT will enhance the learning experiences for primary children, helping them to think and communicate creatively. ICT will also prepare our children for successful lives and careers in an increasingly technological world.

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